ACC.11
60th Annual Scientific Session & Expo

E26
JACC April 5, 2011
Volume 57, Issue 14

CARDIAC ARRHYTHMIAS

TEMPORAL STABILITY OF THE ESOPHAGEAL LOCATION BY COMPUTED TOMOGRAPHY IMAGING IN PATIENTS UNDERGOING REPEAT CATHETER ABLATION OF ATRIAL FIBRILLATION

ACC Poster Contributions
Ernest N. Morial Convention Center, Hall F
Sunday, April 03, 2011, 10:00 a.m.-11:15 a.m.

Session Title: Clinical Electrophysiology --Atrial Fibrillation and Flutter
Abstract Category: 26. Clinical Electrophysiology–Supraventricular Arrhythmias
Session-Poster Board Number: 1021-395

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Background: Accurate identification of the course of the esophagus may reduce the risk of atrio-esophageal fistula in patients undergoing catheter ablation of atrial fibrillation (AF). Reliance upon a pre-acquired image of the esophagus may lead to detrimental results if the esophageal / pulmonary vein relationship is not temporally stable. The purpose of this study was to evaluate the temporal stability of the location of the esophagus in patients undergoing repeat catheter ablation of AF.

Methods: Thirty consecutive patients (age 58±8 years, 73% male, 63% paroxysmal) underwent repeat catheter ablation for AF with a mean of 11 ± 5 months after an initial AF ablation. Cardiac computed tomography (CT) was performed in a 24 hour window prior to each ablation procedure. A single investigator masked to patient identities performed CT image analysis. Esophageal distance from the pulmonary veins (PVs), left atrium and spine was compared on consecutive CT images using the paired Student's t-test.

Results: At the initial procedure, the mean distance between the esophagus and the following structures was: 24±12 mm to right superior PV, 9±10 mm to right inferior PV, 28±14 mm to left superior PV and 11±8 mm to left inferior PV. During the repeat procedure, the mean distance between the esophagus and the following structures was: 25±12 mm to right superior PV, 11±11 mm to right inferior PV, 28±13 mm to left superior PV, and 10±8 mm to left inferior PV. There was no statistically significant change in the esophageal location with respect to the PVs, posterior left atrium, and spine between the initial and repeat ablation procedures (p=NS).

Conclusions: The long-term location of the esophagus is stable relative to the pulmonary veins, posterior left atrium, and the spine. Pre-acquired images of the esophagus can be used to guide ablation away from the esophagus. Additionally, when an initial ablation attempt is limited by the position of the esophagus, the problem will likely recur at repeat procedures and an alternative treatment strategy may be needed.